



Reading and Scholarly Creativity: A Study with Spanish and Chilean Preservice Teachers

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The main aim of this study is to analyse whether scholarly creativity can be linked to the reading process (reading preferences and reading metacognition) of preservice teachers. The research was carried out using a quantitative, descriptive, exploratory, cross-sectional design. The sample consisted of 254 Spanish and Chilean preservice teachers, who were administered online three previously validated questionnaires on creative self-perception, reading preferences and reading strategies. Both descriptive and inferential statistical analysis have been used. The results show a medium-high level of reading metacognition, with a preference for the use of problem-solving strategies while reading and for reading in digital format for academic purposes. There were statistically significant differences both in reading preferences, strategies and creative self-perception according to country (with Chilean students scoring higher in all of them), but no differences were found according to gender. There were positive correlations between creative self-perception in the scholarly domain and reading preferences ($\rho=.275$ for academic digital and $\rho=.433$ for academic print) and metacognition ($\rho=.445$). Academic reading in printed format and global reading metacognition were also found to be significant predictors of self-perception in scholarly creativity, which support the theories of the need of skills in a specific domain to be able to develop creativity in such domain. The study concludes by assessing the implications of this relationship between reading and creativity, proposing the suitability of promoting both metacognitive reflections on the way to consolidating a learning focusing on the process, especially important in the case of future teachers.

Keywords: reading preferences, reading metacognition, scholarly creativity, preservice teacher

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INTRODUCTION

21st century skills are the abilities needed to succeed in an increasing digital world. Among them is creativity, as one of the learning skills along with critical thinking, collaboration, and communication (P21, 2007). It is believed that reading stimulates creativity, and the improvement of creative thinking through reading and writing activities has been demonstrated in children (Segundo Marcos et al., 2020). In addition, creativity and insight tests have been found to have a correlation with reading comprehension (Mourgues et al., 2014). However, there are not enough studies exploring the relationship between reading (habits, motivation, reading comprehension) and creativity in different domains.

On the other hand, teachers are key to obtain a literate citizenship. They need to be able to teach critical reading (Maltepe, 2016), with special emphasis on inferential comprehension, and teach creativity understood as the capacity to generate original and useful solutions (applicable to multiple facets/domains of people's lives: verbal-artistic expression, resolution of daily, social, professional problems, etc.) (Amabile, 1996). However, to be able to do so, as explained by Chan and Yuen (2014) or Yates and Twigg (2017), they need to have developed their own reading and creativity skills.

In this context, the aim of this research is to determine the reading practices of Chilean and Spanish preservice teachers and its relationship with the creative self-perception (CSP) in the scholarly domain, which is related to the way of thinking about learning and producing information in school courses. The research questions are as follows:

- a) What are the reading preferences for academic purposes (digital/paper) of preservice teachers? What are the reading strategies that they use?
- b) What is their creative self-perception in the scholarly domain?
- c) Are there differences according to gender or nationality?
- d) Is there a correlation between academic reading and scholarly creativity?
- e) What is the relative contribution of the preferred reading format and reading metacognition to CSP variability?

Context and Review of Literature

Reading in the digital era and the relationship of future teachers with reading

The ability to read proficiently is an important factor for academic success, as most subjects across the curriculum rely, to varying extents, on reading skills. Teaching reading, thus, is a key aspect in educational settings. It involves not only word attack skills, comprehension skills and fluency skills, but also critical reading skills. The latter will help students to be able to analyze, synthesize and evaluate what is read and develop critical thinking.

Applegate and Applegate (2004) denounced the poor relationship of US student teachers with reading, and there have been many studies with similar conclusions for other

countries (Cremin et al., 2008; Benevides and Peterson, 2010; Granado, 2014; Ouyang et al., 2020, etc). It can be concluded that the reading profile of preservice teachers is not ideal for education professionals since they need to have a high awareness of the importance of reading (both in academic and leisure settings) as a training tool for people. The reading habits and literacy abilities of a teacher affect his/her views toward teaching reading and writing (Benevides & Peterson, 2010). This influences how a teacher implements literacy instruction. In addition, both reading habits (Aygün, 2021) and reading motivation (McGeown et al., 2015) significantly predict reading comprehension skills. Thus, there is a need to provide coherence to the mission of promoting reading in society and the acquisition of solvent and autonomous reading habits.

In recent years there has been a migration from reading printed texts to reading on screens. The use of digital tools in reading learning classes can enhance students' achievement and motivation (Sofiana & Mubarak, 2020) and digital learning material is more effective in improving students' social skills than the printed-out textbooks (Sariyatun et al., 2021). However, on the Internet there is a lot of data and information from numerous sources and other distractors, so reading in digital media entails new comprehension needs (Cromley et al., 2021). The type of reading changes to a fragmented reading very different from traditional reading from printed texts. This is judged as something positive by authors as Cordon (2016) or Schneps (2015), who consider that it enriches the reading processes by eliminating the limitations and static nature of the traditional physical format. In fact, PISA reading comprehension tests have been administered in digital format since 2009 and they include discontinuous texts as the ones present on the Internet (OECD, 2011). However, Duncan et al. (2016) indicate that, although there is a preference for the digital format, the only reading habit to predict inference-making in comprehension and to distinguish skilled from less skilled readers was traditional extended text reading.

On the other hand, reading metacognition comprises the set of actions or strategies that are used to plan, monitor, and evaluate the reading process (Thiede et al., 2009). If the reader is aware of his/her reading process, regardless of the type of support, it corresponds with a better reading metacognition and, consequently, better reading comprehension. This is also affected by the reading format, since there is a correlation between reading format preferences and the perception of reading metacognition both for academic and recreational purposes (Díaz-Díaz et al., 2022a). A recent meta-analysis concluded that the perception of reading metacognition was much better when reading printed texts compared to reading on screens (Clinton, 2019).

Creativity and reading in educational contexts

Since the pioneering studies of Guilford (1967) and Torrance (1976) in creativity, much has been investigated about the conceptualization of creativity and how to assess it (Lemons, 2011). Whether creativity is domain general or domain specific has been a controversy in the field, with recent research tending to consider creativity as domain specific with general skills or traits contributing little to creative performance (Baer, 2012). In this sense, a scholarly or academic domain of creativity (the one measured in

the present study) has been described. Wang et al. (2017) defined it as a student's way of thinking about, learning, and producing information in school courses. It is thought to involve creative analysis, debate and scholarly pursuits (Kaufman, 2012) as well as divergent thinking (Torrance & Goff, 1990), a skill traditionally seen as the primary element of creativity (Aljughaiman & Mowrer-Reynolds, 2005). It also includes aspects related to linguistic intelligence (Gardner, 1999), verbal/linguistic creativity (Kerr & Vuyk, 2013), or intellectual creativity (Ivcevik & Mayer, 2009). It contains skills such as being creative in writing a letter to the editor, arguing in a debate position to which one does not agree or analysing the themes of a good book, all of them clearly related to reading skills. Currently OECD has contributed to disseminate the idea of creativity as a competence, which has influenced educational laws and plans (OECD, 2019), as will be observed when explaining the cases of Chilean and Spanish educational laws later.

On the other hand, a relationship between reading abilities and creativity has been discussed. Piaget (2002) or Vygotsky (1986) stated that thinking skills are closely related to language development. There are different studies demonstrating that creativity is associated with the abilities required for reading and writing (Smith et al., 2000, Sturgell, 2008). Traits encouraged by reading and writing, such as the freedom and ability to communicate ideas, an emphasis on self-discovery or attention to the individual are also supposed to foster creativity (Harrington et al., 1987; Gardner, 1988; Amabile, 1996). Wang (2007) described a positive correlation of creative ability and reading and writing scores, but not with math scores. In a later study, the same author (Wang, 2012) concluded that creativity scores, especially scores of elaboration, are significantly correlated with attitudes towards reading, and the amount of time spent on reading. In addition, creativity has been described as a mediating variable in inferential reading comprehension (Anderson & Gipe, 1983). A recent study by Vicente-Yagüe et al. (2022) also demonstrated that creativity was positively correlated with five of the six reading dimensions (lexical selection, semantic categorisation, grammatical structures, grammaticality judgements and expository comprehension), as well as with the general reading index. For this reason, the authors considered creativity as a component of the reading process.

As for the teaching of creativity, scholarly creativity has also been described as one important educational goal (Cole et al., 1999, Esquivel, 1995). There are different theories describing creativity and creative thinking as multidimensional phenomena (Lucas, 2016), and most its components can be nurtured with the adequate educational approaches. Moreover, students' curiosity and imagination can drive the learning process (Beghetto and Plucker, 2006). For those students with little interest, their motivation can be enhanced with new ways of learning connecting with their creative potential, guiding them to express their ideas and develop their potential, according to Hwang (2015).

Teachers need to understand how creative thinking can be recognized, what drives creative thinking and how they can effectively guide their students to become more creative in their thinking. Their role in developing students' creativity is very important (Suacamram, 2019) and some authors (Chan & Yuen, 2014; Yates & Twigg, 2017)

affirm that teachers must have developed their own creativity first to be able to develop students' creativity, as explained above. In this sense, several studies have assessed the creativity demonstrated by preservice teachers in different academic works (Echevoyen & Martín-Ezpeleta, 2021, Martín-Ezpeleta et al., 2022) with discouraging results. There is also a relationship between teacher's creativity and their teaching's effectiveness (Khodabakhshzadeh et al., 2018). In any case, teachers carry out learning assessment according to the content and skills they consider more relevant. Thus, the results valued in the educational system and the content prioritized from the curriculum will determine the space allowed to creativity in the classrooms. In this context it is deemed appropriate to assess the creative self-perception of teachers in different creative domains and its relationship with skills in different areas.

METHOD

This study utilized a quantitative, descriptive, exploratory, cross-sectional research design. The source population was all students in their sophomore year of Primary Education Teaching at two Spanish universities (one in the centre and one in the eastern part of Spain) and two Chilean universities (both in the centre of Chile) (N=1049). Three of those universities were situated in the top five of their respective countries. Data was collected during the autumn term of 2021 for Spanish students and the autumn term of 2022 for Chilean students.

Participants

Participants in this study were 254 student teachers, 143 of them were Spanish and 111 Chilean. The sample size is approximately 24% of the source population's students. It was a convenience sample composed of 7 natural groups that did not present, a priori, any characteristic that could differentiate them from the population of Spanish and Chilean preservice teachers in their sophomore year. Ages of student teachers varied between 18 and 38 years old, with a mean value of 20.76 and a standard deviation of 2.89. 84.4% of the participants were women and 13.8% men, 2 of the participants described themselves as transgender and were excluded for the gender analysis.

Instruments

Three previously validated instruments were used to gather data from the sample. Attitudes towards academic reading in digital and printed format were measured with two of the subscales (5 items each) of the instrument developed by McKenna et al. (2012). It is completed according to a 6-point Likert scale in which the lowest value determines that the subject does not identify with the indicated reading situation. Construct validity of this scale was reported by the authors (McKenna et al., 2012). Reading strategies were determined with the Metacognitive Awareness of Reading Inventory (MARS) developed by Mokhtari and Reichard (2002). It has three subscales measuring the different reading dimensions: global reading strategies (13 items), problem solving strategies (8 items) and reading support strategies (9 items). It is completed according to a 5-point Likert scale. Content and substantive aspects of validity of the instrument design and external evidence of correlation with reading ability have been reported (Mokhtari and Reichard, 2022; Mokhtari et al., 2018).

Scholarly creativity self-perception was determined using the scholarly subscale (10 items) of the Kaufman domains of creativity scale (K-DOCS), which includes creative analysis, debate and scholarly pursuits. Participants were asked to compare themselves with people of approximately their age and life experience, and rate themselves according to a 5-point Likert scale from 1 (much less creative) to 5 (much more creative) in a series of tasks. The K-DOCS has demonstrated evidence of both convergent and discriminant validity (Kaufman, 2012; McKay et al, 2017) and is considered to be a robust psychometric tool for the self-assessment of creativity across domains (Kapoor et al., 2021).

The reliability of the Spanish translations of the instruments was determined via Cronbach's Alpha. In the reading preferences questionnaire, values of $\alpha=.787$ for Academic Digital and $\alpha=.755$ for Printed Digital were obtained. In the MARSI questionnaire, values of $\alpha=.794$ for global strategies, $\alpha=.707$ for problem solving strategies, $\alpha=.767$ for support reading strategies, and $\alpha=.896$ for global reading metacognition were obtained. The scholarly creativity dimension of the K-DOCS obtained a value of $\alpha=.783$. These values indicate that the translations used in this research have a high internal consistency and are reliable instruments.

Data analysis

Data analysis was carried out with the software SPSS v28. Mean values and standard deviations were calculated for each of the subscales. Kolmogorov-Smirnov test was applied to check the normality of the distributions. There were both normally distributed data, as in Academic digital ($p=.060$), Global strategies ($p=.200$), Global metacognition ($p=.200$) and Scholarly creativity ($p=.059$), and non-normally distributed data, as in Academic print ($p=.036$), Problem-solving strategies ($p<.001$) and Support reading strategies ($p=.036$). To determine the existence of significant differences according to gender or country, Student's t for independent samples or Mann-Whitney U were used depending on the normality of the distributions. The correlation between variables was studied by Pearson's and Spearman's correlation coefficients. In all cases the significance level was set at .05. When significant differences were observed size effects were calculated via Hedges' g. A backward stepwise linear regression was used to explore the influence of potential predictors of scholarly creativity out of academic reading preferences and reading metacognition. At each step, variables were chosen according to their contribution to the model's R^2 , and the p-value threshold was used to set a limit on the total number of variables included in the final model.

FINDINGS AND DISCUSSION

Reading preferences, reading strategies and scholarly creativity of preservice teachers

The global results of the descriptive statistics of the questionnaires about reading preferences and reading metacognition are shown in table 1. As can be seen, future teachers have a higher preference for reading in digital format vs reading on paper for academic purposes, with values similar to those obtained in a previous study with

Spanish preservice teachers (Díaz et al., 2022a). Preservice teachers have a high level of awareness in reading metacognition (a value above 3.5 is considered high, according to Mokhtari & Reichard, 2002), as well as a preference for the use of problem-solving strategies and a lower use of global strategies, which agrees with previous studies in different contexts (Yüksel & Yüksel, 2012; Al-Dawaideh & Al-Saadi, 2013; Iwai, 2016; Martín-Ezpeleta & Echevoyen-Sanz, 2020; Díaz-Díaz et al., 2022b).

Table 1

Descriptive statistics of reading preferences (max possible score 6) and reading strategies (max possible score 5)

	Min	Max	Mean	Standard deviation
Academic digital	1.00	6.00	4.02	1.03
Academic print	1.00	6.00	3.58	1.08
Global strategies	1.38	4.85	3.54	.66
Problem-solving strategies	2.00	5.00	4.11	.61
Support reading strategies	1.88	4.95	3.76	.60
Global metacognition	1.64	5.00	3.69	.62

The creative self-perception in the scholarly domain varied significantly between students, with a minimum score of 1.64, a maximum score of 5 (which was the maximum possible value), a mean value of 3.69 and a standard deviation of .62. These differences can be due to the personality types of the students, which make them engage in scholarly work in different creative styles that consequently affect their scholarly creativity (Wang et al., 2017).

Influence of country of origin

As can be seen in table 2, the country of origin clearly influences the reading preferences and the reading strategies used by this group of preservice teachers, with Chilean students having a higher interest in reading for academic purposes independently of the format and using more reading strategies, thus having a higher level of reading metacognition. Those differences were found to be statistically significant in all cases, except in the use of problem-solving strategies when reading.

The fact that reading motivation is influenced by the cultural and ethnic background of students was revealed by Kambara et al (2021), when validating with Japanese college student an instrument originally developed with Australian young adults. According to the bioecological model of human development (Bronfenbrenner & Ceci, 1994) reading motivation is impacted at different levels: microsystem (learner's direct interactions, e.g., family, teachers, and friends), exosystem (indirect influences from formal and informal social structures, e.g., community, neighbourhood, and parents' workplaces), and macrosystem (the coherence perceived at the micro-, meso-, and exo- system levels; beliefs and ideologies).

At this point, it is worth noting some cultural differences between Chile and Spain. In Chile the access to higher education is more limited and with more presence of students of higher socio-economical level (Espinoza, 2017), and both education and reading are more socially prestigious. This more restrictive access to higher education has an impact

on its social prestige, whose pride is to train the country's elites and especially the teachers of the future. However, in Spain access to higher education is widespread and especially in the case of teacher training grades, very popular, despite the fact that most graduates never work as teachers. The problems detected in the university in Spain must be explained according to mediocre training levels in secondary education, according to PISA, which have justified a change in the educational system in the compulsory levels. The new Spanish National Educational Law (LOMLOE, 2019) prioritizes skills development instead of the conceptual knowledge usually predominant in previous ones. A few years will be needed to assess whether these results can really be improved, but the truth is that university students have training deficiencies in terms of reading comprehension, and this is especially worrying in the case of teachers in training. In this sense, Jiménez (2017) denounced that reading is not a cultural priority in Spain and it has been systematically ignored in the National Educational Laws in the last 50 years.

Table 2

Differences in Academic reading preferences and reading strategies according to country

	Country	Mean value	Standard deviation	t	p	g
<i>Reading preferences</i>						
Academic digital	Spain	3.79	1.00	-4.217	<.001***	1.00
	Chile	4.32	1.00			
Academic print [‡]	Spain	3.26	.98	-5.121	<.001***	1.03
	Chile	3.97	1.08			
<i>Reading strategies</i>						
Global strategies	Spain	3.46	.57	-1.973	.025*	.66
	Chile	3.63	.75			
Problem-solving strategies [‡]	Spain	4.11	.57	-.185	.853	-
	Chile	4.10	.67			
Support reading strategies [‡]	Spain	3.51	.66	-3.761	<.001***	.73
	Chile	3.83	.80			
Global Metacognition	Spain	3.69	.53	-2.094	.019*	.60
	Chile	3.86	.68			

[‡]Due to the non-normality of the distributions, Mann-Whitney U test was used. *There are significant differences at the .05 level. ***There are significant differences at the .001 level.

The creative self-perception in the scholarly domain was also statistically significant between both countries: $t(254) = -1.433$, $p = .077$, $g = .74$, with mean values for Spanish preservice teachers of $3.63 \pm .47$ and mean values of Chilean preservice teachers of $3.75 \pm .74$.

Influence of gender

There are contradictory results for gender differences in reading. Previous studies have stated differences according to gender on reading preferences, with women reading more frequently (Duncan et al., 2016) and valuing more positively their reading career (Díaz et al., 2022b). Comprehension advantages have been observed among females for fiction and males for non-fiction (Duncan et al., 2016). Several factors could be

attributed to these findings such as differences in brain activation, cognitive abilities, learning styles, behavioural, and motivational factors (Logan & Johnson, 2010). Moreover, Meece et al. (2006) claimed that individual ability, race/ethnicity, and social class could alter gender effect.

The results of this study (see table 3) showed a higher preference for academic reading both in digital and printed format in males. They also tended to use more global reading strategies than their female counterparts, while women scored higher in problem-solving strategies, support reading strategies and global reading metacognition. The differences were not statistically significant in any case.

Table 3
Differences in Academic reading preferences according to gender

	Gender	Mean value	Standard deviation	t	p
<i>Reading preferences</i>					
Academic digital	Female	3.99	1.04	-1.123	.131
	Male	4.20	.96		
Academic print [‡]	Female	3.55	1.11	1.747	.417
	Male	3.71	.90		
<i>Reading strategies</i>					
Global strategies	Female	3.52	.67	-.944	.173
	Male	3.64	.63		
Problem-solving strategies [‡]	Female	4.14	.61	3.952	.139
	Male	3.94	.59		
Support reading strategies [‡]	Female	3.68	.73	2.399	.301
	Male	3.47	.80		
Global Metacognition	Female	3.78	.60	.889	.187
	Male	3.68	.61		

[‡]Due to the non-normality of the distributions, Mann-Whitney U test was used.

As for gender differences in creativity, there have been many researchers who have addressed the possibility of a gender bias on different aspects of creativity and creative thinking. Contradictory results have been obtained and the evidence does not clearly support gender differences in creativity based on test results. However, there continue to be large gender differences in creative productivity, that can be based on environmental factors or differences in opportunities and the kind of experiences women and men are likely to have (Baer & Kaufman, 2008). In this case, the self-perception of creativity in the scholarly domain was slightly higher for male preservice teachers, with a mean value of $3.74 \pm .70$, than female preservice teachers, with a mean value of $3.68 \pm .61$. However, the results of Student's t test: $t(252) = -.460$, $p = .323$, showed that those differences were not statistically significant.

Relationship between scholarly creativity and reading

The results of Mourgues et al. (2014) indicated a positive correlation between performance on reading skills, creativity, and insight tasks. In the present study, to assess the relationship between scholarly creativity perception and reading, Pearson product-moment correlations were calculated between preferences for academic reading

(both in digital and printed format), global reading metacognition and creative self-perception in the scholarly domain. The results are shown in table 4. A significant positive correlation was found at the .01 level for all variables, with the highest correlation of .682 found between the preference for academic reading in both formats.

Table 4
Pearson product-moment correlations between variables

	Academic digital	Academic print [‡]	Global metacognition	Scholarly creativity
Academic digital	1	.682**	.396**	.275**
Academic print [‡]		1	.405**	.433**
Global metacognition			1	.445**

[‡]Due to the non-normality of the distributions, Spearman's Rho was calculated.** There is a significant correlation at the .01 level (bilateral)

Further, a regression analysis was performed to determine the contribution of the reading preferences for academic purposes and the reading metacognition on scholarly creativity. The backward stepwise regression analysis was considered the most suitable method since this method allows to determine the non-significant and redundant predictors. Table 5 shows the corresponding data.

Table 5
Summary of backward stepwise regression analysis for variables predicting scholarly creativity

Stage	Independent variables	R ²	Adjusted R ²	F-value	β-value	p	VIF
1		.272	.262	27.405			
	Academic digital				-.114	.166	2.037
	Academic print				.359	<.001	2.066
	Global metacognition				.343	<.001	1.237
2		.266	.259	39.972			
	Academic print				.285	<.001	1.203
	Global metacognition				.328	<.001	1.203

In step 1, $F_{3,251} = 27.405$, $p < .001$, all independent variables predicted 26.2% of the variation in scholarly creativity, and both preference for academic reading in printed format and global metacognition were significant predictors, but preference for academic reading in digital format was not. Tests to see if the data met the assumption of collinearity indicated that multicollinearity was not a concern (Academic digital, Tolerance = .49, VIF = 2.04; Academic print, Tolerance = .49, VIF = 2.07; Global Metacognition, Tolerance = .81, VIF = 1.24). In step 2 academic digital was eliminated, $F_{2,252} = 20.93$, $p < .001$, and the remaining variables reduced the prediction of scholarly creativity by only 0.3%. The data met the assumption of independent errors (Durbin-Watson value = 1.986).

Subsequently, a forward stepwise regression analysis predicting scholarly creativity was carried out. Global metacognition was selected first ($F_{1,253} = 54.86, p < .001$) and accounted for 19.5% (adjusted $R^2 = .195$) of the variance in scholarly creativity. Introducing preference for academic reading in printed format explained an additional 6.4% of the variation in scholarly creativity ($F_{2,252} = 39.97, p < .001$).

CONCLUSION

The results show a medium-high level of reading metacognition in this group of preservice teachers, with a preference for the use of problem-solving strategies when reading. They also preferred to read in digital format than in printed format for academic purposes. There were no differences according to gender in reading preferences or reading strategies, coinciding with a good part of previous studies in this sense, but the country of origin clearly influenced both reading preferences and reading metacognition.

Chilean preservice teachers had more motivation towards reading for academic purposes and statistically higher scores in global reading metacognition. This could be due to the more restrictive access to higher education in Chile as compared to Spain, even if in the last two decades there have been efforts to reduce the existing segregation in the system, which prevents many children and young people from reaching the university studies.

A significant correlation between academic reading and scholarly creativity has been demonstrated. However, the regression analysis showed that only reading in printed format and reading metacognition predicted scholarly creativity (they explained 26.6% of the scholarly creativity variance), but not reading in digital format. Thus, this study serves to highlight that creative self-perception in the scholarly domain is dependent on different variables related to reading, such as the preference for academic reading in printed format and the global reading metacognition. This is in line with the theories stating that to be creative in an area there is a need to be skilled in that area and having knowledge of the corresponding domain (Huang et al., 2017). The investment theory of creativity (Sternberg, 2006) describes six different interrelated resources for creativity: intellectual skills (such as analytical and synthetic skills); knowledge related to domain; particular thinking styles (such as having a preference for thinking in new ways); motivation; specific attributes of the personality; and an environment that is conducive and rewarding for creative ideas. Moreover, the componential theory of creativity (Amabile and Pratt, 2016) describes four components necessary for any individual to produce creative work: three components within the individual (domain relevant skills, creativity-relevant processes, and intrinsic task motivation) and one component outside the individual (the social environment in which the individual is working). In line of these theories, the results of the present study provide converging evidence that at least some creativity domains can be promoted by reading. This study contributes to empirically ratify these theories, filling a space not well explored by educational research, which has to continue investigating a key issue for the training of people with different populations.

As Baer (2012) explained, creativity training needs either to target the domains in which creativity enhancement is desired or to use a wide range of activities in diverse domains if the goal is more general improvement in many domains. Thus, the promotion of reading (critical reading, this is, profound, complex and creative reading) seems to be a double or multiple path of development, as it facilitates the stimulation of creativity and creative thinking. It remains to be specified to what extent reading and creativity condition one another, and in which moments of the educational development this process is more important. Instructional changes in teacher training must involve not only enriching their reading comprehension and creativity, but also their metacognitive reflection on how both skills can be developed naturally and organically. After having experienced this way of training, they would be able to didactically transpose it to their future students. All this will be essential keys to rethink educational instruction critically and creatively.

The limitations of this study are related to the fact that it was not based on a representative sample and therefore has limited external validity. The results relied on self-reports that are subject to biases and limitations, although this data collection technique is the most used in educational research and the instruments used had been previously validated. Further studies will assess how reading and creativity condition one another and in which moments of the educational development this process is more important. All this will be essential keys to rethink educational instruction critically because reading practices should be considered and promoted as a natural and organic way to develop creativity.

At this point it should be remembered that the relationship between reading and creativity is present in consolidated teaching practices. The paradigmatic example is the interpretation of literary texts in cooperative groups and, close related, the exercise of connecting fictional with real events. However, these good practices can be enriched with the monitoring of processes. This implies not only facilitating the ability to reflect on one's own reading strategies, but also promoting reading as a trigger for creative thinking and not a mere hermeneutic analysis of literary texts. Reading to think creatively is a formative key, but also a didactic one, insofar as reading is no longer an end and becomes a means (useful and, therefore, stimulating). On the way to improving teacher training, promoting their own metacognitive reflection (both reading and creative metacognition) is the best guarantee that they will be able to replicate this model in their professional future.

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